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Contents of Carton

Check (✓) for following SR-9000 carton contents:

- SR-9000 master station
- Hardware bag assembly containing:
 - (2) shoulder screws
 - (4) #6x3/8 screws
 - (2) White panel mounting screws
 - (2) "L" panel mounting bracket
- Homeowner's manual with room labels
- Installation Instructions
- Registration Card

Note to installer: Do not discard these installation instructions. Please give all installation instructions, warranty registration and homeowner's manual to homeowner.

Precautions and Guidelines

The NuTone SR-9000 master station has been designed for ease of installation. Please read and follow ALL installation instructions, guidelines and precautions. Any deviation from these instructions or miswiring will cause the unit to fail and all NuTone warranties will be void.

Warning: 120 Volt AC power to the transformer in the IR-106 rough-in must remain OFF until all system wiring at the master and room speakers are complete.

- Observe all local regulations and codes in your area.
- All screw terminals at the master and room speakers must be secure.
- Observe all color codes of wires when connecting master to room speakers.
- The SR-9000 is designed to be used with a NuTone room volume control; no other volume control can be used. **The use of a volume control other than a NuTone volume control will void all NuTone warranties and may result in faulty installation and improper operation.**
- The SR-9000 is designed to be used with NuTone specified wire; no other wire should be used. **The use of wire other than NuTone wire will void all NuTone warranties and may result in faulty installation and improper operation.**

Wiring Specifications

See IR-106 rough-in frame installation instructions for detailed wiring information.

Use NuTone IW-6UL, 22 ga. three (3) twisted pair or NuTone IW-2-UL, 22 ga. twisted pair for connecting:

- Master to room speaker volume controls
- Use NuTone IW-2UL, 22 ga. twisted pair for connecting
- Room speaker volume controls to room speakers
 - Chime module to pushbutton

Use No. 14/2 with ground, 60Hz power cable Class 1 UL Listed (not supplied by NuTone) Observe local codes.

Use shielded audio cables for connecting external audio source to the master station.

INSTALLATION

Room Speaker Wiring

Two or three pairs of twisted cable (IW-2UL) or a single run of IW-6UL cable must be connected from each room volume control location to the master station.

- **Maximum wire length between master and room volume control/speaker:** 100 feet.
- **Maximum total of IW-2UL and/or IW-6UL cable per system:** 600 feet.

IMPORTANT: NuTone cannot be responsible for improper system operation that results from interference generated by light dimmers, fluorescent lighting fixtures, and similar electrical products. Such interference must be corrected at the source.

To help reduce this interference, all wiring connected to the master must be placed at least 12 inches from any AC power wiring. Avoid running wires parallel to AC power wiring.

Maximum Number of Room Speakers

The master station will accommodate a maximum of (6) pairs of 25 OHM NuTone Speakers.

IMPORTANT: Never use standard 8 ohm stereo speakers or master station will be damaged.

Mounting the Optional Chime Module in the Master Station Panel

Refer to Figure 2

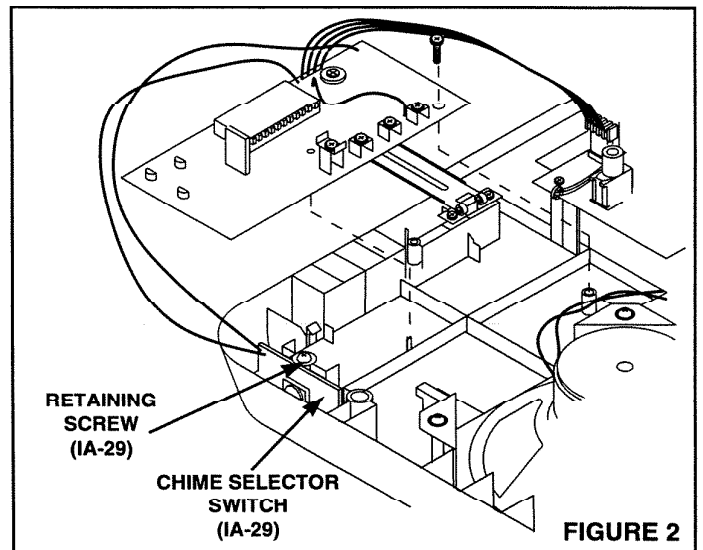
To install the chime module, first position the master face down on a soft cloth to prevent surface damage.

1. Align the optional IA-28 or IA-29 chime module with the mounting bracket located in the master station panel.
2. Apply firm, even pressure to each side of the chime module until the module snaps into place.
3. Fasten the chime module with the one (1) screw supplied with the module
4. Plug the 4 pin connector from the chime module into the connector on the master panel (be sure the connector is aligned correctly with the master station connector).
5. Connection from the chime pushbuttons will be made after the master station's panel has been mounted to the rough-in frame.

MODEL IA-29 ONLY

1. Locate the chime selector switch mounting bracket in the master station's panel.
2. Remove and set aside the chime selector switch retaining screw.

3. Remove and discard the square foam pads on the chime selector switch PC board connected to the chime module.
4. Slide the PC board into the mounting bracket on the master station's panel.
5. Fasten the chime selector switch PC board with the retaining screw previously removed from the master station panel.



INSTALLATION (Continued)

Mounting the Master Station

Refer to Figure 3

1. Use two (2) #6 x 3/8" screws to attach each of the two (2) mounting brackets to the rough-in frame. Before tightening the screws at each mounting bracket, slide the bracket so it is flush with the wall surface (flush with rough-in frame if the rough-in is installed after the wall board). Tighten all four (4) screws.

Refer to Figure 4 & 5

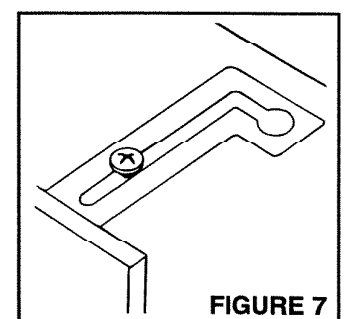
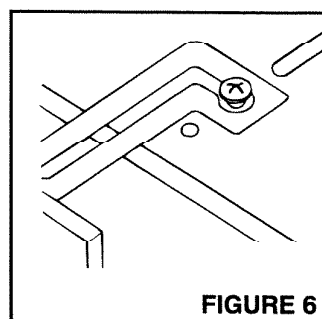
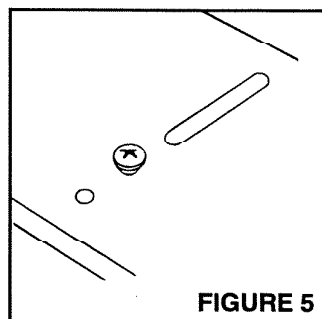
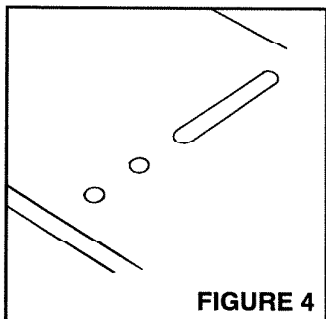
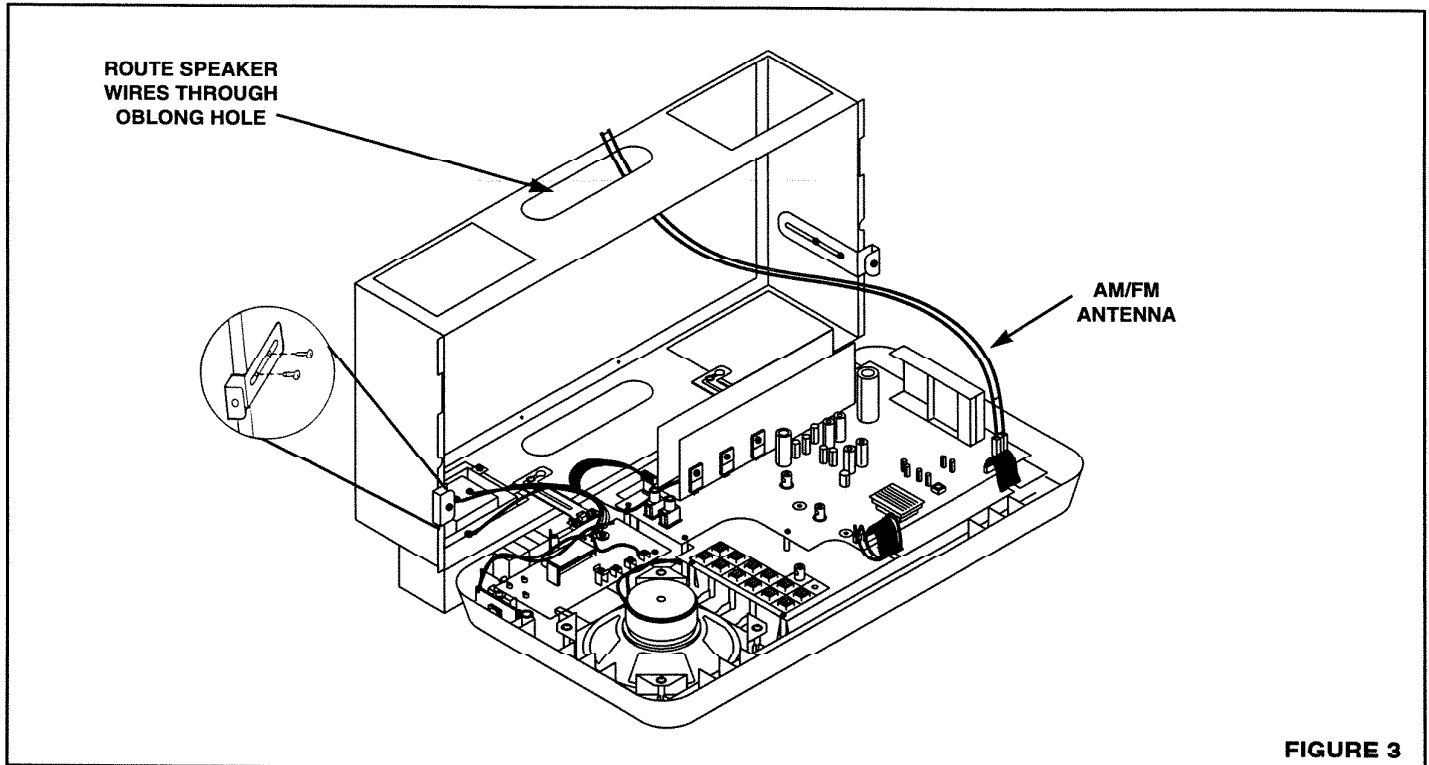
2. For rough-in frames which are recessed into the wall opening, insert two (2) shoulder screws (provided) into the front two holes in the rough-in frame. For rough-in frames which are mounted flush with the wall, insert two (2) shoulder screws (provided) into the back two holes in the rough-in frame.

Refer to Figure 6

3. Attach the master station panel to rough-in frame by placing keyhole slots in both mounting hinges over screw heads of shoulder screws in rough-in frame.

Refer to Figure 7

4. Slide the master station panel to the right, then forward until the panel is flush with the wall.
5. Leave the master station panel faced down to connect wiring.



INSTALLATION (Continued)

Connecting the Room Volume Control Wiring

Note: All room volume control wiring must return directly to the master station. Do not connect wiring from volume control to volume control. Use only NuTone room volume controls.

Only one pair of 25 ohm NuTone speakers may be connected to each room volume control (maximum 6). Never use 8 ohm stereo speakers with this system.

Dress all volume control wiring through the center oblong wiring hole in the top of the rough-in frame.

NOTE: When tightening terminals on the master panel, support the front side of the panel with your hand. This will ensure the panel and panel mounting hinges will not be damaged due to excessive down force on the panel hinges.

Connecting Room Volume Controls without Radio Control Switch using IW-2UL Cable

Refer to Figure 8

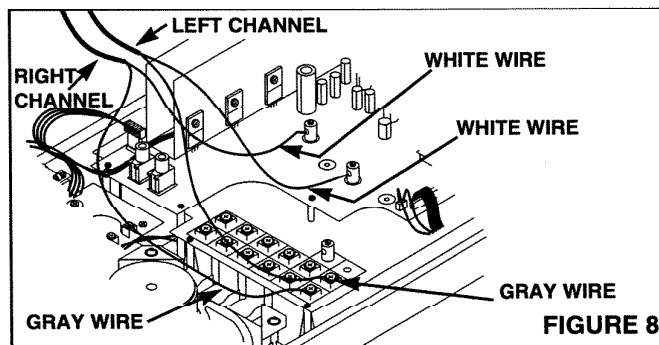
- Start by separating the RIGHT channel gray and white wires of the IW-2UL cable approximately 6" from the end. Next, strip approximately 5/8" of insulation off each wire.
- Repeat this process for the LEFT channel IW-2UL cable.
- Connect the RIGHT channel WHITE wire to the SPKR/"R" GND terminal on circuit board. If more than one volume control is used, twist all white wires together before connecting to terminal. Tighten screw.
- Connect the LEFT channel WHITE wire to the "L" GND terminal on circuit board. If more than one volume control is used, twist all white wires together before connecting to terminal. Tighten screw.

IMPORTANT: Do not connect the RIGHT channel and LEFT channel WHITE wires to the same terminals at the master station. Use both the L and R GND terminals.

- Connect your first RIGHT channel GRAY wire to the "R" SPEAKER OUTPUT No. 1 terminal on circuit board. Tighten screw. Connect the corresponding LEFT channel GRAY wire to the "L" SPEAKER OUTPUT No. 1 terminal on circuit board. Tighten screw.
- Repeat this process for connecting gray wires for the remaining speakers 2-6.

When connecting the cable to the terminals, be sure to observe all color codes. After completing all connections, check for shorted wires.

Refer to the installation instructions packed with the room volume control for wiring of this unit.



Connecting Room Volume Controls with Radio Control Switch using IW-2UL Cable

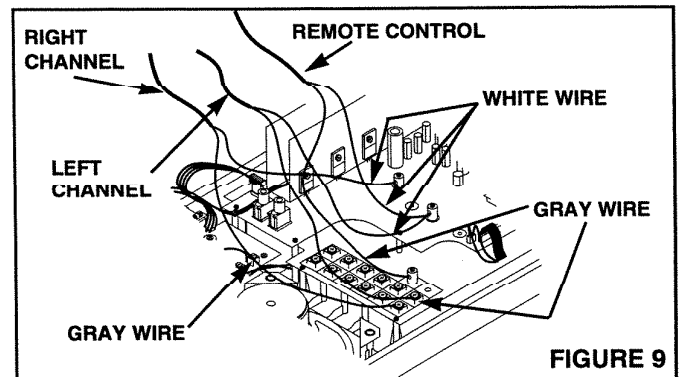
Refer to Figure 9

- Start by separating the RIGHT channel white and gray wires of the IW-2UL cable approximately 6" from the end. Next, strip approximately 5/8" of insulation off each wire. Repeat this process for the LEFT channel IW-2UL cable and the REMOTE CONTROL switch IW-2UL cable.
- Connect the RIGHT channel WHITE wire to the SPKR/"R" GND terminal on circuit board. If more than one volume control is used, twist all white wires together before connecting to terminal. Tighten screw.
- Connect the LEFT channel WHITE wire to the "L" GND terminal on circuit board. If more than one volume control is used, twist all white wires together before connecting to terminal. Tighten screw.
- Connect the REMOTE CONTROL switch WHITE wire to the "L" GND terminal on circuit board. If more than one volume control with REMOTE CONTROL switch is used, twist all white wires together before connecting to terminal. Tighten screw.
- Connect REMOTE CONTROL switch GRAY wire to the CONTROL terminal on circuit board. If more than one volume control with REMOTE CONTROL switch is used, twist all gray wires together before connecting to terminal. Tighten screw.
- Connect your first RIGHT channel GRAY wire to the "R" SPEAKER OUTPUT No. 1 terminal on circuit board. Tighten screw. Connect the corresponding LEFT channel GRAY wire to the "L" SPEAKER OUTPUT No. 1 terminal on circuit board. Tighten screw.

Repeat this process for connecting gray wires for the remaining speakers 2-6.

When connecting the cable to the terminals, be sure to observe all color codes. After completing all connections, check for shorted wires.

Refer to the installation instructions packed with the room volume control for wiring of this unit.



INSTALLATION (Continued)

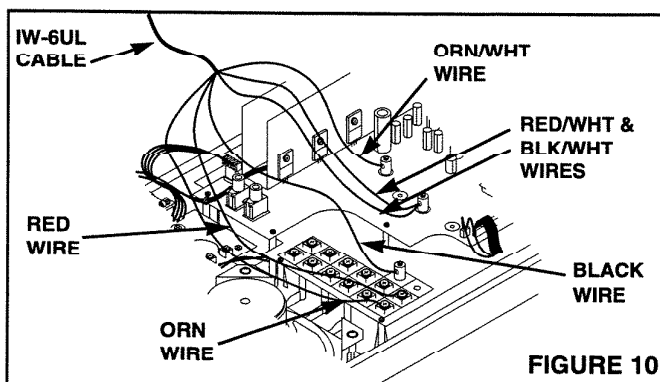
Connecting Room Volume Controls with Radio Control Switch using IW-6UL Cable

Refer to Figure 10

- Start by removing approximately 6" of insulation from the cable end. Next, separate the orn & orn/wht pair, red & red/wht pair and blk & blk/wht pair. Finally, strip approximately 5/8" of insulation off each wire.
- Connect the RIGHT channel ORANGE/WHITE wire to the SPKR/"R" GND terminal on circuit board. If more than one volume control with REMOTE CONTROL switch is used, twist all ORANGE/WHITE wires together before connecting to terminal. Tighten screw.
- Connect the LEFT channel RED/WHITE wire to the "L" GND terminal on circuit board. If more than one volume control with REMOTE CONTROL switch is used, twist all RED/WHITE wires together before connecting to terminal. Tighten screw.
- Connect the REMOTE CONTROL switch BLACK/WHITE wire to the "L" GND terminal on circuit board. If more than one volume control with REMOTE CONTROL switch is used, twist all BLACK/WHITE wires together before connecting to terminal. Tighten screw.
- Connect the REMOTE CONTROL switch BLACK wire to the CONTROL terminal on circuit board. If more than one volume control with REMOTE CONTROL switch is used, twist all BLACK wires together before connecting to terminal. Tighten screw.
- Connect your first RIGHT channel ORANGE wire to the "R" SPEAKER OUTPUT No. 1 terminal on circuit board. Tighten screw. Connect the corresponding LEFT channel RED wire to the "L" SPEAKER OUTPUT No. 1 terminal on circuit board. Tighten screw.
- Repeat this process for connecting ORANGE and RED wires for the remaining speakers 2-6.

When connecting the cable to the terminals, be sure to observe all color codes. After completing all connections, check for shorted wires.

Refer to the installation instructions packed with the room volume control for wiring of this unit.



Connecting the Power Transformer

Refer to Figure 11

NOTE: Be sure AC power is off before connecting the power transformer. **DO NOT** turn AC power on to the transformer until

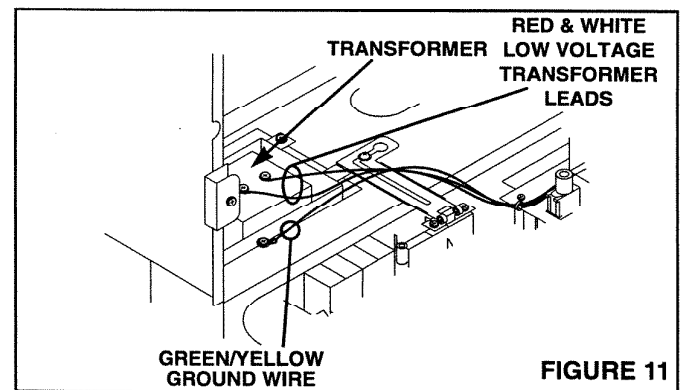
ALL wiring at the room speakers and master station is complete.

1. The transformer's primary leads should already be connected to the 120 volt AC house supply wiring. Be sure the power is off before connecting the transformer to the master station.
2. The RED and WHITE low voltage transformer leads are located in the bottom left corner of the master station. Connect and tighten these low voltage leads to the transformer's low voltage secondary screw terminals located in the bottom left of the rough-in.

Connecting the Ground Wire

Refer to Figure 11

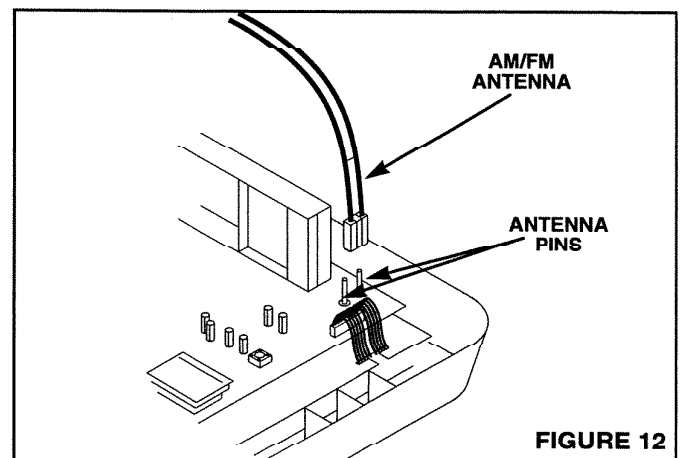
1. Remove the front #6 transformer box mounting screw from rough-in.
2. Insert screw into ring terminal of green/yellow ground wire.
3. Reinstall the screw with ring terminal into the same mounting hole that the screw was previously removed from.



Connecting the Antenna

Refer to Figure 12

1. Plug the AM/FM antenna (supplied with the IR-106 rough-in frame) to the 2-pin connector located in the upper right corner of the main circuit board.



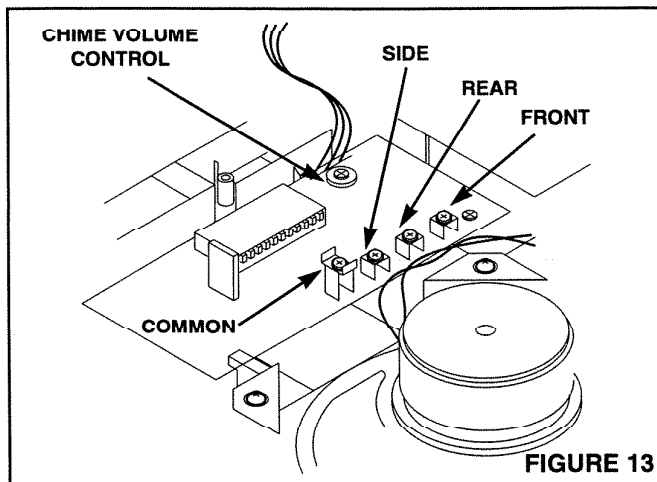
INSTALLATION (Continued)

Connecting the Optional Chime Module

Refer to Figure 13

Refer to the earlier section "Mounting the Optional Chime Module in the Master Station Panel".

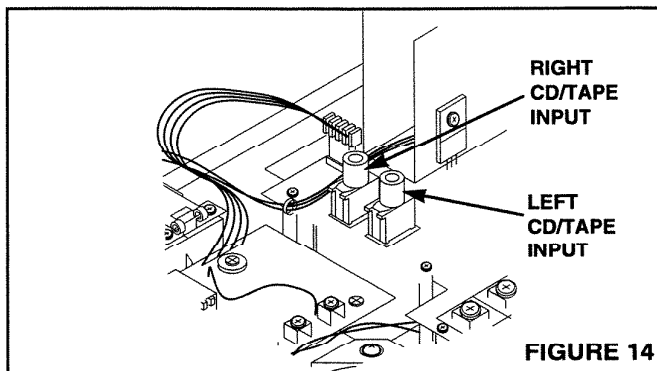
1. Identify the front chime push button wires. Strip back each wire approximately 5/8".
2. Connect the front push button wires to the screw terminals marked **FRONT** and **COMMON** on the chime module.
3. Repeat steps 1 and 2 for the **REAR** and **SIDE** chime push buttons.
4. Refer to the instructions packed with the chime module for information on chime volume level and chime tune selection (IA-29 only).



Connecting Optional Accessory

Refer to Figure 14

1. To connect an external audio source (stereo system, VCR, TV, etc. with low level audio outputs) to the SR-9000 master station, locate the **LEFT** and **RIGHT CD/TAPE** inputs on the lower center of the master station's main circuit board.
2. Connect an RCA™ phono type plug to the shielded audio cable coming from the external audio source. Follow the phono plug manufacturer's instructions when connecting to cable. Do this for both the **LEFT** and **RIGHT** audio channels.
3. Insert the phono plugs into the **CD/TAPE** jacks on the master station main circuit board.



Securing the Master Station Panel

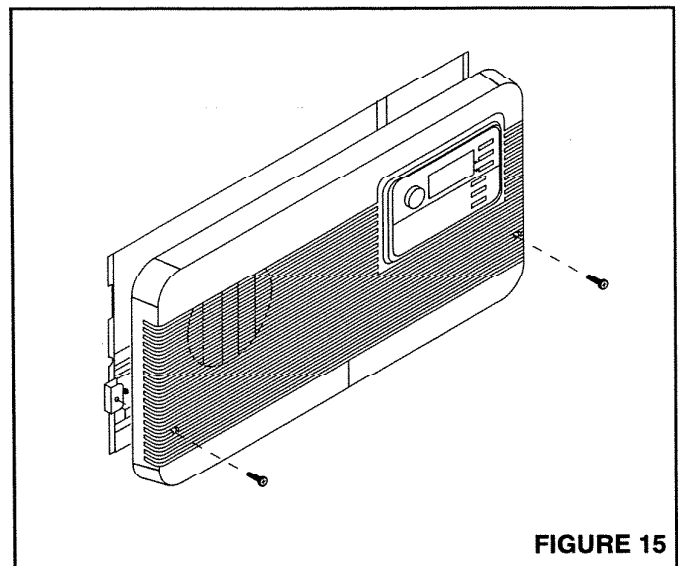
Refer to Figure 15

1. Inspect all wiring connections at the master and room speakers.
2. Make sure the antenna connection plug is secure.
3. Dress all room speaker wires flat against the back of the rough-in while the master panel is raised into final position.

WHEN RAISING THE MASTER PANEL TO ITS FINAL LOCATION, DO IT SLOWLY. BE CAREFUL NOT TO HIT OR DAMAGE ANY OF THE CIRCUIT BOARDS OR WIRING.

4. Position the master station panel over the rough-in frame, and align screw holes in the master panel with mounting brackets.
5. Secure the master station panel to rough-in mounting brackets with the two (2) screws provided.

NOTE: The mounting screws will pierce the wall surface behind the mounting brackets. If the wall surface is hard, a clearance hole must be drilled behind the mounting brackets before securing the master station panel.



Powering Up the System

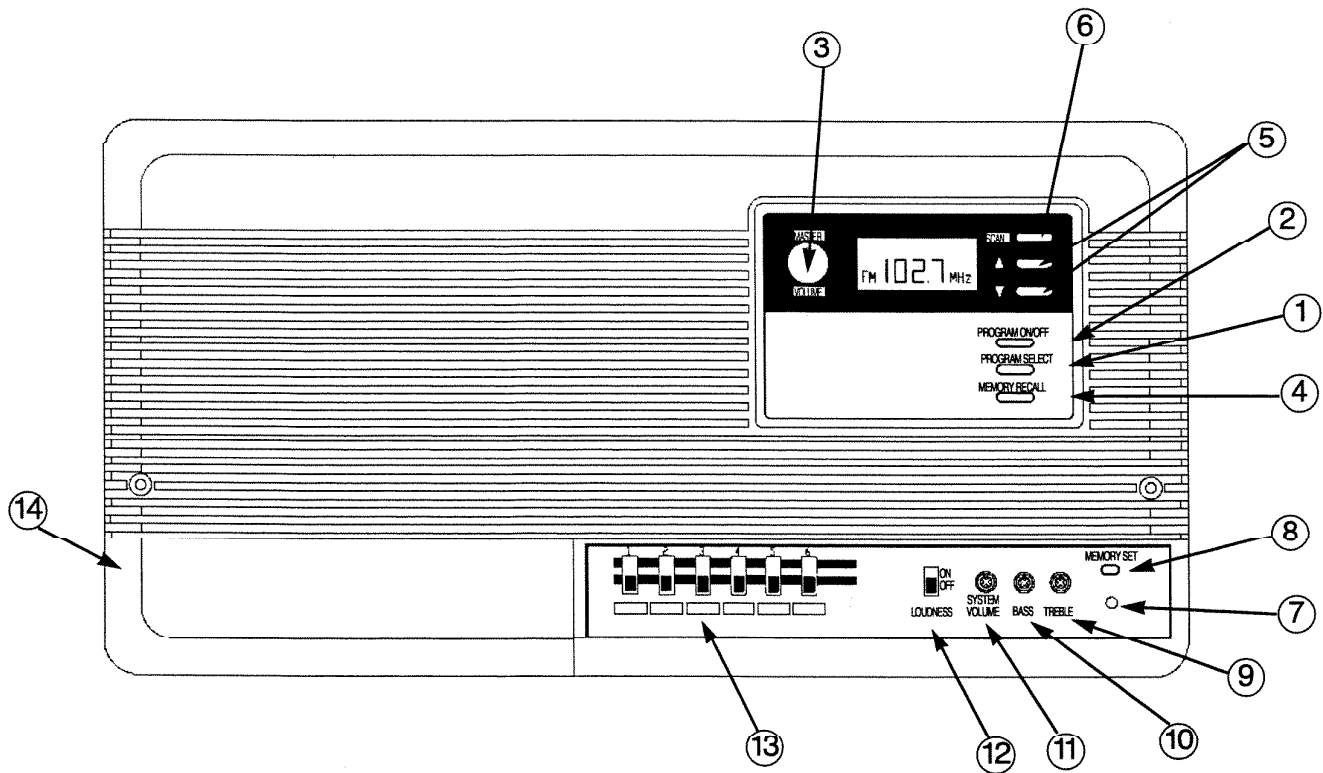
Once all connections throughout the system have been checked, power can be applied to the master station transformer.

1. Apply power to the master station by turning on the circuit breaker that supplies power to the power transformer in the IR-106 rough-in frame.
2. When the power is first applied, and the radio is turned on, the LCD display will flash until the radio is tuned. Please refer to the operational checkout section of this manual for additional information.

SYSTEM OPERATING CONTROLS

Master Station Controls

1. **PROGRAM SELECT:** Selects the program audio source: AM, FM, CD/TAPE. The selected mode will be indicated in the LCD display.
2. **PROGRAM ON/OFF:** Turns on/off the selected program audio source.
3. **MASTER VOLUME:** Adjusts the volume at the master station.
4. **MEMORY RECALL:** Provides access to recall and stored radio frequencies.
5. **UP/DOWN TUNING:** Provides manual tuning of the AM/FM radio.
6. **SCAN:** Activates scan tuning during AM/FM operation.
7. **MICROPROCESSOR RESET:** Initiates a reset of the microprocessor. NOTE: A reset of the microprocessor will erase the system's memory.
8. **MEMORY SET:** Stores desired radio frequencies into a selected memory location.
9. **TREBLE:** Adjusts the high frequency audio content of the source audio.
10. **BASS:** Adjusts the low frequency audio content of the source audio.
11. **SYSTEM VOLUME:** Adjusts the program audio level throughout the system.
12. **LOUDNESS:** Compensates for the loss of the bass and treble response the human ear has when listening to audio at low volume levels.
13. **ROOM SPEAKER STATUS SWITCHES:** Selects speakers ON/OFF.
14. **ELECTRONIC CHIME TUNE SELECTION:** Selects the tune of the optional IA-29 chime module.



SYSTEM OPERATING CONTROLS (Continued)

Operational Checkout

If the system does not operate according to the following instructions, refer to the installer's Troubleshooting Guide.

1. Set **ROOM SPEAKER STATUS SWITCHES** to **RADIO** position.
2. Set the **MASTER VOLUME** control to maximum.
3. Set each individual **ROOM VOLUME** control to maximum.
4. Set the **SYSTEM VOLUME** control to 1/3 position.
5. Set the **BASS** and **TREBLE** controls to 1/2 position.
6. Tune in a strong local FM radio station as follows:
 - A. Press the **PROGRAM ON/OFF** key.
 - B. Press the **PROGRAM SELECT** key until the FM radio is selected and displayed in the LCD display.
 - C. Use the **▼ ▲** keys to locate a strong local FM radio station.

Beginning with the master station, check each room in the system for proper operation using the following procedure:

1. Adjust the room **VOLUME** controls (**MASTER VOLUME** on the master station) between maximum and minimum making sure the audio is completely muted in the minimum position.
2. Press and hold the **REMOTE CONTROL** key for 2 seconds at any room volume control with a remote control switch. The radio will turn off.
3. Press and hold the **REMOTE CONTROL** key for 2 seconds at any room volume control with remote control switch. The radio will turn on. For additional information on remote radio control, refer to the homeowner's manual.
4. Repeat procedure at all room volume controls.

Setting Program Audio Controls

The volume levels required at each room may vary with the location of the speakers and the size of the room where the speakers are located. Spend some time experimenting with volume levels, and adjust each pair of speakers so that you can clearly hear the radio. Use the following procedures to set your system's volume levels.

1. At each room, turn the **VOLUME** control completely clockwise to maximum volume.
2. At the master station, set the **ROOM SPEAKER STATUS** switches to **RADIO**.
3. Turn the **MASTER VOLUME** control to maximum volume.
4. Turn the **SYSTEM VOLUME** control on the master station to approximately 1/3 volume.
5. Select an AM or FM radio station with a strong, clear signal.
6. Adjust the master station's **SYSTEM VOLUME** control until you have enough volume at the room that requires the highest volume (i.e. a large living room, family room, basement, etc.).

NOTE: The master station speaker is equipped with its own volume control. All room speakers are connected to their own room volume controls. Although the Master Station's SYSTEM VOLUME sets the SYSTEM's Volume level, you may adjust the master speaker volume and individual speaker's volume level as desired.

7. Adjust the **MASTER VOLUME** control and all room volume controls to the volume level you desire.

SYSTEM OPERATING CONTROLS (Continued)

Diagnostic Tests

The following diagnostic tests have been incorporated into the NuTone SR-9000 Stereo Receiver to assist in system troubleshooting.

1. Master station and remote control keyboard test.
2. Display test.

The following applies to both diagnostic tests:

1. To access any of the diagnostic tests, the system must be in the quiescent state (radio and CD/Tape off) and the master station panel must be dropped to the service position.
2. Pressing the MEMORY SET key will end the current diagnostic test.
3. The current diagnostic test will end after one minute of inactivity.

MASTER STATION AND REMOTE CONTROL KEYBOARD TEST- Verifies that all keys at the master station and remote control switches at room volume controls are functioning properly.

To Activate: Press and HOLD

1. ▼ key
2. Diagnostic test key SW-319 on main PC board (Figure 16)

In this mode the LCD will display the following as each key is pressed.

KEY	DISPLAY
No key pressed	00d
PROGRAM ON/OFF	004
PROGRAM SELECT	005
MEMORY RECALL	006
MEMORY SET	007
▲	008
▼	009
SCAN	010
REMOTE CONTROL SWITCH	30d

DISPLAY TEST- Displays all of the segments in the display.

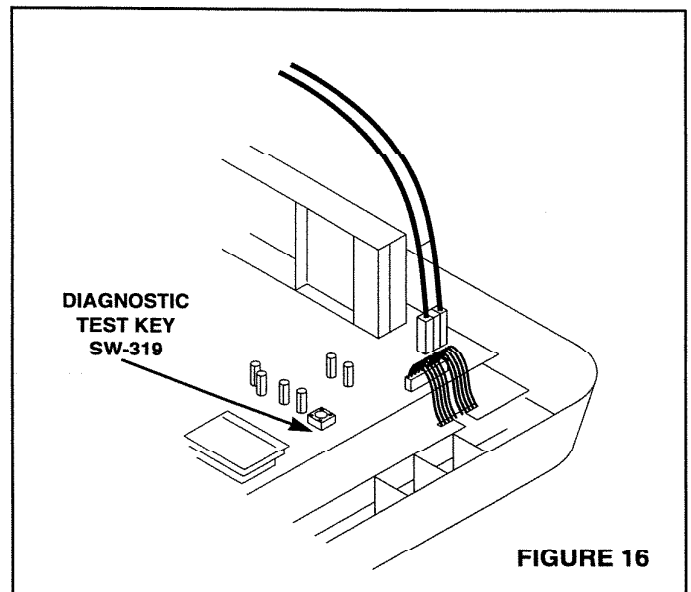
To Activate: Press and HOLD

1. ▲ key
2. Diagnostic test key SW-319 on main PC board (Figure 16)

Resetting the Microprocessor

NOTE: Resetting the microprocessor will cause radio memory channels to be lost.

Should the system not operate properly, the internal microprocessor may require resetting. To reset the microprocessor, use the point of a pen to press the reset button through the access hole behind the right lower door under the **MEMORY SET** key.



INSTALLER'S TROUBLESHOOTING GUIDE

TROUBLE	POSSIBLE CAUSE	POSSIBLE REMEDY
No radio, no display	No electrical power.	Be sure there is 120 VAC, 60 Hz power to the transformer's primary. Next, check 16 VAC on the transformer's secondary.
	Defective transformer.	Replace transformer.
No radio, display working.	Faulty Master Station.	Isolate Master Station from installation by removing all wires from the SPKR/R GND, "L" GND and CONTROL screw terminals. Also select all Room Speaker Status Switches to the "OFF" position. With power on, radio should be playing at Master. If no radio, Master is probably faulty. If radio plays, reconnect cables one at a time from room speakers.
	Installation problem.	Check screw terminals on Master Station for shorted wires or miswired cables. Remove one room speaker cable at a time. When radio comes on, check room speaker connections and run short/continuity check of speaker wiring.
	Antenna problem.	Check for shorted antenna connection. Remove antenna connector from tuner board and touch each pin with metallic object. If radio plays, antenna is not functioning; be sure it is installed properly.
IU is displayed continuously in the LCD display.	Shorted wire from CONTROL screw terminal in master to ground.	Remove all wires from the CONTROL screw terminal on Master Station. Reconnect each wire one at a time until IU is displayed in LCD display. Check defective cable for shorts between wires and at room volume control connection/remote control switch.
Remote control of Radio from room volume control does not work.	Broken wire between master and room volume control.	Check continuity of wires going between room volume control and CONTROL/"L" GND screw terminals at Master Station.
	Installation Problem.	Check for broken or loose wires at CONTROL and "L" GND screw terminals at Master Station. Check for broken or loose wires at room volume control remote control switch.
Low or distorted radio volume.	Incorrect volume setting.	Follow "Setting Program Audio Controls" instructions.
Hum in speakers.	Room Speaker wiring run too close to household AC power wiring.	Keep room speaker wiring as far and as practical from household AC power wiring. Do not run room speaker wiring parallel to AC power wiring.
	Interference from household electrical fixtures.	A dimmer may cause interference. For dimmer and fluorescent lighting interference, use filters (G.E. 89G635 or equivalent; NuTone Part No. 1559A-000).
Static.	Loose ground connection.	Check ground connection to Master and connection to earth ground source.
	Interference from household electrical fixtures.	A dimmer may cause interference. For dimmer and fluorescent lighting interference, use filters (G.E. 89G635 or equivalent; NuTone Part No. 1559A-000).
	Interference from household electrical appliances.	Correct interference at the source (fish tank, heater, handtool, coffee pot, etc.)

INSTALLER'S TROUBLESHOOTING GUIDE

TROUBLE	POSSIBLE CAUSE	POSSIBLE REMEDY
Room Speakers not working.	Wire installation.	Check screw terminals at Master Station and room speakers for broken wires or loose connections. Check continuity of wire.
	Speaker/room volume control.	Check continuity of speaker. Check wiring of room volume control. Substitute with speaker and/or volume control known to be in working order.
Optional IA-28/IA-29 chime module does not operate or operates at low level.	Wire installation.	Be certain the chime is connected to the Master Station. Also be certain the Front, Side and Rear buttons are properly connected to the chime module. Check continuity of wire.
	Volume setting.	Adjust the volume of the chime module by turning the volume control located on the chime module. NOTE: Chime audio will not be heard at room speakers selected to OFF.
Cannot receive radio station which is received by another radio in home.	Faulty antenna connection.	Antenna should be located in attic and connected to tuner in Master. Check antenna connector to be sure it is connected to 2 pin connector on Master